

Claims

- [c1] What is claimed is:
- 1.A writing method for CD-MRW comprising:
- (a)obtaining data to be written to a CD-MRW substrate;
 - (b)determining a write packet range of the data;
 - (c)identifying any defect blocks in the write packet range;
 - (d)identifying breakpoints in the write packet range based on the defect blocks;
 - (e)splitting the write packet range into at least two sub-ranges based on the breakpoints; and
 - (f)individually writing each sub-range.
- [c2] 2.The method of claim 1 wherein the sub-ranges comprises:
- a continuous packet range located in a data area (DA), the continuous packet range having no defect blocks; and
 - a defect packet range having a defect block;
- wherein different sub-ranges are processed by different writing procedures.
- [c3] 3.The method of claim 2 wherein the continuous packet range further comprises:
- a complete packet range having wholly continuous packets; and
 - a partial packet range;
- wherein different continuous packet ranges are processed by different writing procedures.
- [c4] 4.The method of claim 3 wherein the writing procedure of the complete packet range comprises:
- overwriting each packet of the complete packet range directly.
- [c5] 5.The method of claim 3 wherein the writing procedure of the partial packet range comprises:
- (a)reading an original partial packet;
 - (b)replacing corresponding write blocks in the original partial packet to generate a write packet; and
 - (c)writing the entire write packet back over the original partial packet.

- [c6] 6.The method of claim 2 wherein the writing procedure of the defect packet range comprises:
- (a)reading a replace packet in a spare area (SA);
 - (b)replacing corresponding write blocks in the replace packet to generate a modified replace packet; and
 - (c)writing the modified replace packet back to the SA.
- [c7] 7.The method of claim 1 wherein the writing method further comprises:
- identifying any SAs in the write packet range; and
 - identifying the breakpoints based on the SAs in the write packet range.
- [c8] 8.The method of claim 1 wherein the breakpoint indicates a packet having a defect block.
- [c9] 9.The method of claim 1 wherein the breakpoint is an SA.
- [c10] 10.The method of claim 1 wherein the breakpoint is a partial packet.
- [c11] 11.The method of claim 1 wherein the breakpoint is a packet having a defect block.
- [c12] 12.A reading method for CD-MRW comprising:
- (a)determining a read block range of the data;
 - (b)identifying any defect blocks in the read block range;
 - (c)identifying breakpoints in the read block range based on the defect blocks;
 - (d)splitting the read block range into at least two sub-ranges based on the breakpoints; and
 - (e)individually reading each sub-range.
- [c13] 13.The method of claim 12 wherein the sub-ranges comprises:
- a continuous block range located in a DA, the continuous block range having no defect blocks; and
 - a defect block range having a defect block;
- wherein different sub-ranges are processed by different reading procedures.
- [c14] 14.The method of claim 13 wherein the reading procedure of the continuous block range comprises:

- (a)reading a block in the continuous block range; and
- (b)transferring data of the block to a host computer.

- [c15] 15.The method of claim 13 wherein the reading procedure of the defect block range comprises:
- (a)reading a replace block in an SA; and
 - (b)transferring data of the replace block to a host computer.